

5

around the flap. Herein, such leakage is prevented by means of the sealing elements 47 and 45 which take the form of a pair of blocks integrally molded on the rear side in alinement with the ends of the ribs, and thin, finlike projections or ridges molded on the rib ends to extend rearwardly from the rib, when free, a distance greater than the spacing of the ends from the front faces of the blocks, thereby forming a linear seal at 54 (see FIG. 6) extending from the underside of the hinge web 25 downwardly to below the level of the seal between the fin and the rib.

As shown in FIGS. 2 and 3, the upper end of each sealing ridge 45 is joined to the hinge web 25 and the lower end preferably is adjacent the underside of the rib 38. The thickness of the ridge is somewhat exaggerated in FIGS. 4 and 5, the important thing being sufficient resilient compressibility to insure that a pressure seal is formed and maintained to the level of the seal between the fin and the rib. For this purpose, the ridge may be little more than an elongated, rearwardly projecting flash of plastic on the end of each rib. The blocks 47, of course, provide abutment surfaces that are offset forwardly from the rear side 21 to lie close to the vertical plane of the rear edge of the flap 12 and the ribs, thereby minimizing the required length of the finlike ridges. It will be seen that the wings 53 are for improved appearance only, the contents of the can being effectively sealed against escaping into the clearance spaces covered by the wings.

To form the seal around the sifter flap 18, a second fin 55 (FIG. 7) extends from the straight side 22 of the sifter hole entirely around the perforated sifter 19 and is integrally joined at both ends to the straight side, the lower, free edge portion of the fin being inclined inwardly and downwardly to seal against the sifter in the area above the holes 20 when the flap 18 is closed. Finlike ridges 57 on the ends of the sifter are positioned to be compressed against blocks 58 alined with the ends and thereby complete the seal around the flap.

It will be seen in FIG. 7 that a continuation 59 of the arc of the sifter 19 intersects the fin 55 well above its lower edge so that swinging of the flap 18 and the sifter into the opening 17 brings the lower edge into interfering engagement with the fin to deflect the same laterally outwardly all the way around the sifter. The lower edge of the sifter preferably is beveled at 60 to facilitate the initial movement into the opening, past the latching shoulder 43 and beyond the fin. As shown in FIG. 1, the locking lips 41 are formed adjacent the lower edge of the fin and extend radially outwardly to abut against the lower edge of the fin as the flap is opened after the lips have been forced past the fin. Thus, the fin serves as a locking abutment as well as a sealing element providing the same full-peripheral, resilient sealing action provided by the fin 44 around the spoon-hole opening 11. Clearances and wings of the type shown in FIG. 8 preferably are provided for the sifter flap as well.

From the foregoing, it will be seen that the improved closure may be made in the same basic, single-piece molded form as the closure disclosed in my prior patent with both a spoon opening and a sifter opening and hinged, integral flaps for closing the openings. In addition, however, the integrally molded fins 44 and 55 provide highly effective seals around the full length of the two depending ribs 19 and 38 by pressing yieldably and resiliently against the ribs after the latter are pressed into the fins as the flaps are closed. Because of the easy yieldability of the fins, it is possible to provide a sufficient degree of interference fit between the ribs to insure effective seals even after a substantial amount of wear in the molds occurs in service use.

In addition, the provision of the simple compressible sealing elements on the ends of the ribs and the adjacent surfaces of the hinge walls of the two openings eliminates leakage around the ribs, these elements cooperating with the fins and the hinge webs to complete the full periph-

6

eral seals around the flaps. As a further advantage resulting from this approach to the sealing problem, it is permissible to provide intentional clearances between the ribs and the side surfaces of the openings, spanned by the fins so that no leakage can occur and preferably masked by the wings 53 for better appearance of the closure.

I claim as my invention:

1. In a single-piece closure of molded plastic for covering one end of a container and having a generally flat top defining a dispensing opening having a substantially straight rear side, a closure flap having a substantially straight rear edge integrally joined to said top along said rear side to form a hinge for swinging of the flap between open and closed positions, a depending rib on the underside of said flap extending from said rear edge at one end of said hinge forwardly and around the free edge portions of the flap and back to said rear edge at the other end of said hinge, and a side surface on said top defining the remaining sides of said opening and extending forwardly from said rear side at said one end around said rib and back to said rear side at said other end whereby said rib fits downwardly into said opening when said flap is in said closed position, the improvement comprising, a thin and resiliently flexible sealing fin formed by an elongated strip of said plastic extending forwardly from said rear side at said one end along said side surface and back to said rear side at said other end, said strip having an upper edge integrally joined to said side surface and spaced below said top, and a depending laterally flexible lower edge portion spaced inwardly from said surface and positioned, when free, across the path of said rib during movement of said flap into said closed position to engage the rib and yield laterally and be expanded outwardly as the flap is closed and thereafter press resiliently against the full length of the rib, and means forming seals between said rear side and the ends of said rib when said flap is closed.

2. A single-piece closure as defined in claim 1 in which said means comprise resiliently compressible elements on said rib ends projecting rearwardly from the latter when said flap is closed, and opposed abutment surfaces on said rear side positioned for interfering engagement with said elements from said hinge to the level of sealing engagement of said fin and said rib adjacent said rear side.

3. A single-piece closure as defined in claim 2 in which said rear edge of said flap is spaced forwardly from said rear side of said opening and integrally joined thereto by a flexible web of said plastic forming said hinge, and said abutment surfaces are the front faces of blocks molded integrally with said rear side in alinement with said rib ends, said front faces being spaced less than a predetermined distance from said ends when said flap is closed and said elements projecting away from said ends, when free, a distance greater than said predetermined distance.

4. A single-piece closure as defined in claim 3 in which said elements are thin, finlike ridges on said rib ends extending from said hinge to adjacent the lower edge of said rib.

5. A single-piece closure as defined in claim 1 in which said lower edge portion is joined at each end of said strip to said rear side and is inclined downwardly and inwardly relative to said side surface, said rib extending downwardly into said opening at a lesser slope than the incline of said lower edge portion thereby to telescope into said strip with a wedge fit along the full length of the rib.

6. A single-piece closure as defined in claim 5 in which said opening is of generally segmental shape; said side surface being a curved upright wall terminating at each end in a section extending transversely of said hinge, and said rib having a corresponding shape telescoping closely within said curved wall and said straight sections, said strip having a curved portion joined to said curved wall and straight portions joined to said straight sections and to said rear wall.